

RESEARCH PARKS AND JOB CREATION:
INNOVATION THROUGH COOPERATION

Statement of

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before the

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"Research Parks and Job Creation: Innovation through Cooperation"
Hearing of the Senate Banking Committee
Economic Policy Subcommittee
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Good afternoon, Mr. Chairman and members of the Committee. My name is Charles Wessner. I direct the program on Technology, Innovation, and Entrepreneurship at the National Research Council's Board on Science, Technology, and Economic Policy. The Research Council is the operating arm of the National Academy of Sciences, National Academy of Engineering, and the Institute of Medicine of the National Academies, chartered by Congress in 1863 to advise the government on matters of science and technology.

Recognizing the importance of targeted government promotional policies relative to innovation, the National Academies Board on Science, Technology, and Economic Policy is studying selected foreign innovation programs and comparing them with major U.S. programs. My statement today captures the insights and observations made by leading national and international experts during a high-level conference at the National Academies that focused on best practices among science and technology research parks around the world.

The Growth of Locational Competition

- **There is an intense and growing competition among nations and regions of the world for economic activity that creates high-value jobs and improves living standards**
 - Research parks are seen increasingly as a means to create dynamic clusters that accelerate economic growth and international competitiveness.

- Today, countries as diverse as China, Singapore, France, and Mexico are among those undertaking substantial national efforts to develop research parks of significant scale and scientific and innovative potential.
- **China is a leading practitioner of the research parks strategy for economic and regional development.**
 - China’s large science and technology industrial parks symbolize that nation’s strong determination to grow and become internationally competitive through significant national and regional investments in science-based economic development.
- **Both the absolute number and scale of Chinese research parks are remarkable.**
 - China’s 54 state-level science and technology industrial parks are designed to help develop the industrial base for advanced, high-growth industries in electronics and information technology, new materials, renewable energy, and bio-medicine.
 - The average major science park in China is over 10 million acres. By comparison, the average American research park is 358 thousand acres. Research Triangle Park, one of our largest, is 7 million acres in size.

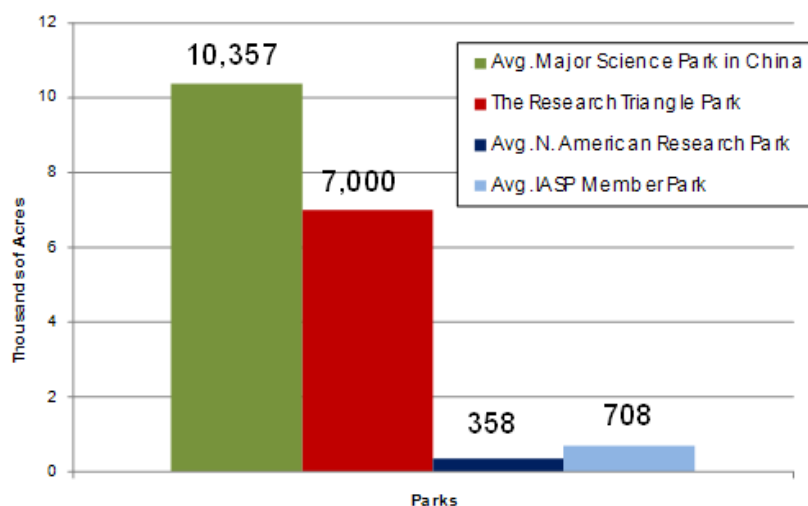


FIGURE 1: Research Parks in Comparative Perspective—an Issue of Scale¹

¹ “Average North American Research Park” data are from “Characteristics and Trends in North American Research Parks: 21st Century Directions,” commissioned by AURP and prepared by Battelle, October 2007;

- The growth of **Zhang Jiang High Tech Park (ZHT)** near Shanghai is illustrative.
 - Beginning almost from a clean slate, Chinese authorities encouraged more than 30 research institutions to team up with R&D centers of multinationals to anchor the park site. Some 200 small and medium sized Chinese high-tech companies have joined these large research centers.
 - Outside the park, the Shanghai Jiao Tang University and Fudan University contribute to the park's 8,600 strong workforce of scientists and researchers
 - The park also benefits from national policies to attract Chinese overseas scientists back home with low rent, tax breaks, and assistance with living needs. There were over 250 such “sea turtles” in 2004 alone.
 - The Chinese government is also a major financial supporter for biotechnology companies in ZHT Tech Park. This includes:
 - Grants from the National Technology Innovation Fund for SMEs.
 - The establishment of the Shanghai Pudong New Area Venture Fund to attract additional venture capital. In 2006, this amounted to more than \$2.5 billion in venture funding for the ZHT Tech Park.
- The **Zhong Guan Cun Science Park in Beijing** is another example of the scale of Chinese efforts.
 - The park hosts over 20,000 enterprises and 950,000 employees, receiving total income of 850 billion Yuan (about US\$ 124 billion). More than 800 enterprises among these each earn \$15 million or more in revenue.

“Average IASP Member Park” data are from the International Association of Science Parks annual survey, published in the 2005-2006 International Association of Science Parks directory.

- The park has attracted almost 10,000 “sea turtles,” who have set up 4,200 companies in Zhong-guan-cun Science Park.
- **To the extent that they are effective in achieving their goals, these large-scale, well-funded research parks have the potential to enhance China’s capabilities in leading technological sectors**

The Contribution of Research Parks

- **Research parks are widely seen, both in the United States and abroad, as an effective public-private partnership tool to increase the return on a nation’s investment in research and development.**
 - According to Dr. Dan Mote, President of the University of Maryland, research parks can play a key role in helping the university reach beyond its walls and help develop regional innovation clusters
 - Similarly, President Barker of Clemson University sees research parks as playing a key role in promoting university-industry collaborations. He cites the Clemson University-International Center for Automotive Research (CU-ICAR) as a positive example of how such collaborations can help support technologically advanced manufacturing in the United States.
 - Interestingly, leaders of national laboratories, such as Sandia, NASA-Ames and the National Cancer Institute, have all found that research parks are an important tool for advancing their missions by building and maintaining ties to the private sector, generating greater returns on existing federal facilities and capabilities, and helping to grow the local economy with well-paid jobs.
- **By advancing the research and commercialization missions of universities and national laboratories, research parks often serve as catalysts for the development of innovative clusters.**
 - The co-location of creative activity within the concentrated geographical area of a research park can help transfer of new ideas from universities and national laboratories to the marketplace.

Research Parks in the United States

- **The United States has led the way in park creation and the generation of high-tech clusters.**
 - In the United States, innovative clusters and parks have developed as a result of government action and private initiatives, and in some cases around government-funded laboratories.
 - One example is the high-technology industries that emerged and grew around the government laboratories and major universities in the Boston area.
 - In the case of Silicon Valley, multiple private industries interacting with a major university, and irrigated with substantial and sustained federal funding, created powerful developmental synergies.
 - A third approach to the development of innovation clusters is through the deliberate creation of research parks, such as North Carolina's Research Triangle Park, begun nearly sixty years ago, or the Sandia Research Park created in 1999.
- **Despite our early leadership, the United States is not making comparable efforts, nor are federal programs supporting regional and state efforts to the same degree.**
 - Investments by the world's leading nations in research parks reflect an appreciation of their capacity to spur knowledge-based growth and a national commitment to enhance technological competitiveness through innovation.
 - While research parks such as those at NASA Ames and Sandia have recorded significant progress, and new federal initiatives such as that of the National Cancer Institute are underway, the potential of research parks appears to be less appreciated by policymakers and the public in the United States.
- **In the United States, support for research parks is principally undertaken by state and local governments with limited support by the federal government.**
 - Given the limited scale of these efforts, some believe that the United States government should pursue a more comprehensive strategy to support the growth of research parks and the benefits of economic growth and national competitiveness that they bring.